REMARKS

Prior to the Office Action dated December 21, 2010, Claims 1-23 were pending. Claims 1, 3-5, 8, 9, 13, 17, 18, 21, and 22 have been amended and Claims 2, 6, 7, and 23 have been canceled. Support for the amendments may be found throughout the specification, for example, at least in the originally filed claims and in paragraphs [0099] and [0100] of the application as published in U.S. Patent App. Pub. No. 2007/0274584. No new matter has been added. As such, Claims 1, 3-5, and 8-22 remain pending and are presented for examination. Applicant respectfully requests reconsideration for allowance of the application in view of the amendments set forth above and the remarks set forth below.

Discussion of Claim Rejections Under 35 U.S.C. § 101

The Examiner has rejected Claim 23 under 35 U.S.C. § 101 as being directed to non-statutory subject matter because the claim may be interpreted to cover a transitory medium. Applicant respectfully disagrees with the merits of this rejection. In order to expedite prosecution, Applicant has canceled Claim 23. Accordingly, the rejection is moot.

Discussion of Claim Rejections Under 35 U.S.C. § 102

The Examiner has rejected Claims 1-5, 17-20, and 21 under 35 U.S.C. § 102(a) as being anticipated by T.P. Tian, Detection of Femur Fractures in X-Ray Images ("Tian"). Applicant respectfully submits that "[a] claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." M.P.E.P. at § 2131, citing *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628 (Fed. Cir. 1987). Moreover, "*all* words in a claim must be considered in judging the patentability of that claim against the prior art." *In re Wilson*, 424 F.2d 1382, 1385 (CCPA 1970).

Applicant respectfully submits that Tian fails to disclose all the limitations of Claim 1 as amended. As amended, Claim 1 recites, *inter alia*, "applying an adaptive sampling scheme in which the bounding box is divided into a predetermined number of sampling points of a normalized sampling grid such that sampling locations in different images correspond to consistent locations within the area of interest."

Tian is generally directed to "estimating [a] neck-shaft angle from a contour of the femur" including extracting "the femur contour accurately from x-Ray images" and computing "a neck-shaft angle based on the contour of the femur." *Tian*, p. 59, ll. 1-6. However, Tian fails to disclose at least "applying an adaptive sampling scheme in which the bounding box is divided into a predetermined number of sampling points of a normalized sampling grid such that sampling locations in different images correspond to consistent locations within the area of interest" as recited by Claim 1 as amended. Moreover, the Examiner does not allege that Tian teaches this limitation.

Accordingly, since Tian fails to teach or suggest all the limitations of Claim 1 as amended, Applicant respectfully requests that the rejection be withdrawn. Independent Claim 21 recites at least some of the patentable limitations described above with respect to Claim 1 as amended. For at least the same reasons, Tian fails to teach or suggest all the limitations of Claim 21 as amended and Applicant respectfully requests the rejection be withdrawn.

Discussion of Dependent Claims 2-5 and 17-20

Applicant further submits that the cited art does not teach every limitation of the dependent claims. Claim 2 has been canceled. Claims 3-5 and 17-20 are dependent either directly or indirectly on independent Claim 1 as amended. Applicant respectfully submits that pursuant to 35 U.S.C. § 112, ¶ 4, the dependent claims incorporate by reference all the limitations of the claim to which they refer. Therefore, the dependent claims are allowable for at least the same reasons as described above in connection with independent Claim 1 as amended. Although Applicant has not addressed all the issues of Claims 3-5 and 17-20, Applicant respectfully submits that Applicant does not necessarily agree with the characterization and assessments of these claims made by the Office Action, and Applicant believes that each claim is patentable on its own merits.

Discussion of Claim Rejections Under 35 U.S.C. § 103(a)

The Examiner has rejected Claims 6-8 under 35 U.S.C. § 103(a) as being unpatentable over Tian in view of U.S. Patent App. Pub. No. 2005/0010106 ("Lang"). The Examiner has rejected Claims 9 and 11 under 35 U.S.C. § 103(a) as being unpatentable over Tian in view of U.S. Patent App. Pub. No. 2003/0215119 ("Uppaluri"). The Examiner has rejected Claim 10

under 35 U.S.C. § 103(a) as being unpatentable over Tian in view of Uppaluri and further in view of U.S. Patent No. 5,776,063 ("Dittrich"). The Examiner has rejected Claim 12 under 35 U.S.C. § 103(a) as being unpatentable over Tian in view of Uppaluri and further in view of Lang. The Examiner has rejected Claims 13 and 14 under 35 U.S.C. § 103(a) as being unpatentable over Tian in view Uppaluri and further in view of U.S. Patent App. Pub. No. 2005/011718 ("MacMahon"). The Examiner has rejected Claim 15 under 35 U.S.C. § 103(a) as being unpatentable over Tian in view Uppaluri in view of MacMahon and further in view of Lang. The Examiner has rejected Claim 16 under 35 U.S.C. § 103(a) as being unpatentable over Tian in view of Uppaluri in view of MacMahon and further in view of U.S. Patent App. Pub. No. 2003/0223627 ("Yoshida"). The Examiner has rejected Claims 22 and 23 under 35 U.S.C. § 103(a) as being unpatentable over Tian in view of Lang.

To establish a *prima facie* case of obviousness the prior art reference (or references when combined) must teach or suggest all the claim limitations. *In re Royka*, 490 F.2d 981, 985 (CCPA 1974); *see also* M.P.E.P. § 2143.03. Additionally, there must be "a reason that would have prompted a person of ordinary skill in the relevant field to combine the [prior art] elements" in the manner claimed. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 419 (2007). Applicant respectfully submits that none of the cited art, either alone or in combination, teaches or suggests all the elements claim of the independent Claims.

<u>Discussion of Claim 1 as Amended</u>

Claims 6 and 7 have been canceled. Claim 1 has been amended to incorporate at least some of the limitations of canceled Claims 6 and 7. As described above, Applicant submits that Tian fails to disclose or suggest all the limitations of Claim 1. Lang fails to cure the deficiencies of Tian.

Lang describes that "two or more overlapping ROIs can also be defined and used to analyze any given image" and that "a field of sampling points may be generated and the analysis performed at these points." *Lang*, ¶ [0203]. Moreover Lang describes that "the sampling field can have regular intervals or irregular intervals with varying density across the image." *Id.* However, Lang fails to teach at least "applying an adaptive sampling scheme in which the bounding box is divided into a predetermined number of sampling points of a normalized sampling grid such that sampling locations in different images correspond to consistent locations

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within the area of interest" as recited by Claim 1 as amended. In contrast to Claim 1, Lang describes that "amount of overlap between the windows can be determined, for example, using the interval or density of the sampling points," and that "the shape of the windows can be varied to have the same orientation and/or geometry of the local structure clipping and to maximize local specificity." *Lang*, ¶¶ [0204], [0205].

Several benefits are provided by various embodiments of the method recited in Claim 1. For example, aspects of certain embodiments of Claim 1 may ensure that sample locations corresponding to specific locations of an object in the x-ray image to be analyzed are consistent between different images containing bones and other objects of different sizes and shapes. In one aspect, this may avoid the need to scale (i.e., normalize) an x-ray image itself. Scaling may result in the loss of texture information when an image is shrunk or introduced noise and artifacts when an image is enlarged. Moreover, "applying an adaptive sampling scheme in which the bounding box is divided into a predetermined number of sampling points of a normalized sampling grid such that sampling locations in different images correspond to consistent locations within the area of interest" as recited in Claim 1 as amended may in another aspect allow for extraction of approximate bone contours with the ability to tolerate variations of shape over the bones of different patients.

Accordingly, Applicant submits that Lang fails to disclose the above recited limitation of Claim 1 as amended. Moreover, the Examiner does not allege that Lang teaches this limitation. Accordingly, any combination of Tian and Lang fail to teach or suggest all the recited limitations of independent Claim 1.

Discussion of Claims 22 and 23 as Amended

Claim 23 has been canceled. Independent Claim 22 recites at least some of the patentable limitations described above with respect to Claim 1 as amended. For at least the same reasons, any combination of Tian and Lang fail to teach or suggest all the limitations of Claim 22 as amended and Applicant respectfully requests the rejection be withdrawn.

Discussion of Dependent Claims 9-16

Claims 9-16 are dependent either directly or indirectly on independent Claim 1 as amended. Applicant respectfully submits that pursuant to 35 U.S.C. § 112, ¶ 4, the dependent

claims incorporate by reference all the limitations of the claim to which they refer. Applicant submits that any combination of the above cited references fails to disclose or suggest all the elements of independent Claim 1, nor does the Examiner use these references in such a manner.

As described above, Applicant submits that Tian fails to disclose or suggest all the elements of independent claims 41. Uppaluri, MacMahon, Yoshida, and Dittrich fail to cure the deficiencies of Tian, nor does the Examiner rely on these references to do so. Accordingly, any combination of the cited references fails to teach or suggest all the recited limitations of independent Claim 1.

Although Applicant has not addressed all the issues of the dependent claims, it is respectfully submitted that Applicant does not necessarily agree with the characterization and assessments of the dependent claims made by the Examiner, and Applicant believes that the dependent claims are patentable on its own merits. Furthermore, Applicant respectfully submits that, "[i]f an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious." M.P.E.P at § 2143.03, citing *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988). Therefore, the dependent claims as amended are allowable for at least the same reasons as described in connection with independent Claim 1 as amended. As such, Applicant respectfully requests the rejection to be withdrawn.

No Disclaimers or Disavowals

Although the present communication may include alterations to the application or claims, or characterizations of claim scope or referenced art, Applicant is not conceding in this application that previously pending claims are not patentable over the cited references. Rather, any alterations or characterizations are being made to facilitate expeditious prosecution of this application. Applicant reserves the right to pursue at a later date any previously pending or other broader or narrower claims that capture any subject matter supported by the present disclosure, including subject matter found to be specifically disclaimed herein or by any prior prosecution. Accordingly, reviewers of this or any parent, child or related prosecution history shall not reasonably infer that Applicant has made any disclaimers or disavowals of any subject matter supported by the present application.

REQUEST FOR ALLOWANCE

In light of the amendments contained herein, Applicant submits that the application is in condition for allowance. Accordingly, reconsideration and allowance of this application are earnestly solicited. Should any issues remain unresolved, the Examiner is encouraged to telephone the undersigned at the number provided below.

Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

KNOBBE, MARTENS, OLSON & BEAR, LLP

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